

JAMAICAN LAND SNAILS, 5

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(Plate 2)

The first paper of this series appeared in the last July number; the symbols used are explained on pages 7 to 9. The following key to the Jamaican groups of *Varicella* defines new subgenera; many species have been dissected, incl. *V. acuticostata* (Orb.) sent by Miguel L. Jaume.

Anoma splendens medinae new subspecies.

Basal keel longer and more continuous; columella usually strongly truncate. Alt. of type (fig. 1) 21.9 mm., maj. diam. 7.9 mm., min. diam. 6.8 mm. with $8\frac{1}{4}$ whorls remaining.

Type locality (ANSP. 163925): NMM. This race somewhat approaches *A. alboanfractus* (Ch.), but is larger and more elongate.

A. nigrescens levior new subspecies.

Shell with spire smooth and polished; growth-threads not prominent until last $\frac{1}{4}$ whorl, where (as in *quadricolor*) they are more widely spaced than in *nigrescens*. Typically greenish-white with white lip but also in *quadricolor* and *nigrescens* (fig. 4) patterns. Alt. of type (fig. 3) 19.3 mm., maj. diam. 8.0 mm., min. diam. 6.9 mm. with $7\frac{1}{4}$ whorls remaining.

Type locality (ANSP. 163926): EJ3. This subspecies approaches *A. sinuata* (C.B.A.) in sculpture but has a much less sinuate peristome.

Urocoptis ambigua medinae new subspecies.

Shell as large as biggest *magna*, bright roseate; basal keel usually much stronger and sometimes appr. prominence in *U. cylindrus*. Alt. of type 34.2 mm., maj. diam. 11.9 mm., min. diam. 10.7 mm., alt. apert. 7.8 mm., diam. apert. 8.8 mm. with $8\frac{1}{4}$ whorls remaining.

Type locality (ANSP. 163927): MMM. This might be regarded as a giant variety of *U. cylindrus* but occurs in the range of *U. ambigua* and certainly intergrades with var. *magna*.

Key to Jamaican Subgenera and Sections of Varicella.

A(B) atrial opening about halfway between visceral stalk and right ommatophore; retractor of last free from genitalia; anat-

omy otherwise similar to *Varicellaria*; richly colored shells with strongly sinuous palatal lip; type *V. leucozonias* Gmelin)

sg. *Varicella* Pfr.

B(A) atrial opening near base of right ommatophore; retractor of last in penioviducal angle; vagina and atrium short (long in *Melaniella*). (G) animal with dark bands radiating from visceral stalk; penial flagellum well developed; shell columella more or less truncate. (F) sg. *Varicellaria*; radular centrals unicuspid (tricuspid in *Melaniella*) but laterals bicuspid; shell varices usually conspicuous. (E) shell sculpture already distinct on 2nd embryonic whorl. (C) shell slender, with widely-spaced ribs (like *Melaniella* but columella more truncate); type *V. mandevillensis* Pils.

st. *Costavarix* new.

C(B) shell with closer, subequal growth-striae or riblets. (D) columella straightened and weakly truncate; type *V. blandiana* (C.B.A.)

st. *Varicellula* Pils.

D(C) shell usually stouter with strongly twisted, truncate columella; type *V. procera* = *V. necrodes* H.B.B.

st. *Varicellaria* Pils.

E(B) sculpture absent or vague on 2nd whorl (*Varicella* s.s., groups II, III, IV of Man. Conch.); type *V. similaris* Pils.

st. *Euvaricella* new.

F(B) radular teeth unicuspid; varices not distinctly colored; type *V. curvilabris* (Pfr.)

sg. *Varicellina* Pils.

G(B) animal usually whitish; penial flagellum vestigial; radular teeth unicuspid; shell columella spirally ascending, not truncate; varices often vague; type *V. laeviusculus* (C.B.A.)

sg. *Sigmataxis* Pils.

Varicella (*Varicellula*) *blandiana* subaequa new subspecies.

Ribs not puckered at suture. Alt. (of type) 12.15 mm., diam. 28 (3.36 mm.), alt. apert. 30 (3.66 mm.), diam. apert. 42 (1.54 mm.); $8\frac{1}{4}$ whorls.

Type locality (ANSP. 163988): MM3b. This form has been confused with *V. proxima* (C.B.A.) from eastern Jamaica, but has heavier, more closely spaced, growth threads, like in typical *V. blandiana*.

V. (Varicellaria) subdola new species. Figs. 5 and 6.

Shell-form similar to that of *V. philippiana* but smaller and much smoother; corneous with numerous reddish chestnut varices (5 on last whorl). Embryonic whorls $2\frac{3}{4}$ ($3\frac{1}{4}$ sutural count); first $\frac{3}{4}$ to one almost smooth, later with regular, impressed, growth lines (38 on last); neanic whorls similarly sculptured; 72 lines on last whorl (4 weakly convex interspaces per

mm.). Aperture elongate; peristome weakly arcuate, with palatal wall slightly concave. Alt. of type (fig. 5) 16.42 mm., diam. 42 (6.83 mm.), alt. last wh. 71 (11.62 mm.), alt. apert. 51 (8.38 mm.), diam. apert. 38 (3.16 mm.); 7 whorls.

Type locality (ANSP. 163989): WWF. On the basis of sculpture, *V. subdola* falls into the group of *V. jamaicensis* (Pfr.), but has a much shorter spire and a more twisted and truncate columella.

V. (*Euvaricella*) *castanea* new species. Fig. 7.

Shell elongate; chestnut corneous with bright reddish varices (3 on last wh.), followed by lighter bands. Embryonic whorls $2\frac{3}{4}$; first $1\frac{1}{4}$ almost smooth; next $\frac{1}{2}$ whorl with impressed, growth lines appearing but often incomplete below; last with 30 quite distinct lines. Later whorls with interspaces between impressed, growth lines weakly convex; last with 58 much flattened, growth threads ($4\frac{1}{2}$ per mm.) separated by evenly rounded sulci. Aperture elongate, with long axis about 20° to that of shell; peristome almost vertical but weakly arcuate; columella lightly concave, obliquely truncate. Alt. of type (f. 7) 15.37 mm., diam. 30 (4.57 mm.), alt. last wh. 58 (8.94 mm.), alt. apert. 36 (5.54 mm.), diam. apert. 44 (2.42 mm.); $7\frac{1}{2}$ whorls.

Type locality (ANSP. 163990): EEJ. *V. castanea* has similar apical sculpture to, but stronger than *V. nemorensis* and *V. phillipsii*, both of which have some traces of growth-lines on the second embryonic whorl; it is more slender than either and lacks a palatal point or tooth. *V. costulosa* (C.B.A.) has a broader aperture with shorter columella and apparently lacks color-varices.

V. (*E.*) *arcuata paradisi* new subspecies. Fig. 10.

Shell paedogenetoid. Embryonic whorls $2\frac{3}{4}$, of which last has weak growth lines. Later whorls with irregularly spaced, major growth-furrows (weakest on last and obsolescent towards base) and almost flat, vaguely striate interspaces; color-varices more numerous (6 on last whorl). Alt. of type (f. 10) 7.66 mm., diam. 31 (2.40 mm.), alt. last wh. 57 (4.39 mm.), alt. apert. 34 (2.61 mm.), diam. apert. 48 (1.25 mm.); 7 whorls. Type locality (ANSP. 163991): VCMd.

V. (*Varicellina*) *vicina portlandensis* new subspecies. Figs. 8 and 9.

Shell larger with more whorls; bright corneous, slightly darker before and lighter after varices (3 on last wh.). Embryonic

whorls $2\frac{3}{4}$; $1\frac{3}{4}$ smoothish, last with 13 light growth furrows. Later whorls more closely striate; last with 46 major furrows and weakly striate, flat interspaces (3 to mm.). Palatal peristome arcuate, concave and thickened internally to form a low nodule; columella short, markedly sigmoid and strongly truncate. Alt. of type (fig. 8) 15.12 mm., diam. 35 (5.22 mm.), alt. last whorl 65 (9.84 mm.), alt. apert. 45 (6.86 mm.), diam. apert. 37 (2.54 mm.); $7\frac{3}{4}$ whorls.

Type locality (ANSP. 163992): EJ3a. This quite constant subspecies is figured in *Man. Conch.*, vol. 19, pl. 9, fig. 39; the characters of its peristome distinguish it from *V. vicina* and it also has a less triangular aperture and wider plaits than *V. curvilabris* (Pfr.), which probably is west Jamaican (Gosse).

Pleurodonte (Dentellaria) cara catadupae new subspecies.

Figs. 11 to 13.

Helix cara media C.B.A. (1851, *Cont. Conch.* 9: 169) not *H. media* Gm. (1790, *Syst. Nat.*: 3640). Shell rimate to imperforate; spire more elevated; both sides of carina light-colored with very dark band above and below; slightly lighter towards suture and shading into much lighter on base. Outer two teeth large, united at base; innermost obsolescent. Lip brownish. Alt. of type (fig. 12) 14.1 mm., maj. diam. 220 (31.0 mm.), min. diam. 191 (26.9 mm.) with $4\frac{3}{4}$ whorls; extremes of 4 shells: 13.0–14.8, 209–232 (30.2–32.0), 184–196 (25.4–27.9) with $4\frac{1}{2}$ to $4\frac{3}{4}$. Type locality (ANSP. 163923): VW2, arboreal.

Zaphysema olivaceum new species. Figs. 14 to 16.

Animal with dark olive mantle-edge (orange to reddish in *Z. tunicatum*). Shell nearest *Z. tunicatum*, which also does not develop deciduous hairs on last whorl, but usually darker olive brown; growth wrinkles and microscopic criss-cross striae coarser; columella more sinuous, heavier and with more evenly rounded edge. Edge of peristome usually broken; abnormally thickened in type. Alt. of type (fig. 15) 22.2 mm., maj. diam. 121 (26.9 mm.), min. diam. 100 (22.2 mm.), alt. apert. 69 (15.2 mm.), diam. apert. 97 (14.7 mm.), with $5\frac{1}{4}$ whorls; extremes of seven shells of same whorl-size: 22.0–23.5, 104–121 (24.5–26.9), 87–100 (20.4–22.4).

Type locality (ANSP. 163917): EEJa. This may be the true *Z. tenerrimum* (C.B.A.), but the unique type of that species looks more like *Z. tunicatum*, although it is an abnormally depressed shell with coarse, impressed spirals (probably due to injury).

Guppya gundlachi (Pfr.) + *Helix simulans* C.B.A. (type not seen), ground [EJF, KF, KHW, MM3, MN2,3, NM2; sexually mature when quite small; more angulate than usual (f. *orosiana* Mart.) when typical size (depressed) but attaining (MM3) 2.53×132 (3.33 mm.), apert. 42 (1.07) $\times 155$ (1.66 mm.), with $5\frac{1}{4}$ whorls].

Zonitoides arboreus (Say), ground [MM3b, MN3c; small and depressed].

Miradiscops opal (Pils.), ground [MM3b; anatomy as in Mexican examples but shells with slightly larger umbilicus than types; *Helix apex* C.B.A. also looks like a *Miradiscops*].

Opeas pumilum (Pfr.), ground [EJF, EJ3, MM3].

Lamellaxis (*Leptopeas*) *micra* (Orb.), ground [EJ3, ENF, KC2, KF, KH, ML2, MM1-2, MN3, NM2, VC, VW2, WV, WSF, WW]. *L. striosus* (C.B.A.), ground [KF, KHS, ML2, MM1,3,4, MN2-3, NM2, VCM, WWF]. *L. robertsi* (Pils.) [KF, KHW; dead]. *L. (s.s.) monodon* (C.B.A.), ground [MN3]. *L. pallidus* (C.B.A.) [VCMd-dead]. *L. (Allopeas) gracilis* (Hutton), ground [MM3].

Leptinaria lamellata (Pot. & Mich.), ground [VW2-dead, WV, WWF].

Subulina octona (Brug.), ground near cultivation [EJ3, EJG, KC2, KF, KH, ML2, MM1,3, NM1-2, VCM, VW1, VWS, WC, WSF, WV, WWF].

Spiraxis terebella (C.B.A.), ground and on logs [KF, MN2-3, VW2, VWS]. *S. inusitatus* (C.B.A.), ground [MN3c]. *S. anomalus* (C.B.A.), ground, incl. typical [VW2] and race *hollandi* (Hend.) [VWS]. *S. mirabilis* (C.B.A.), ground [MN3c]. *S. problematicus* (Pils.), ground [MN3c]. All these species belong to different subdivisions of the genus, as will be discussed in a future paper.

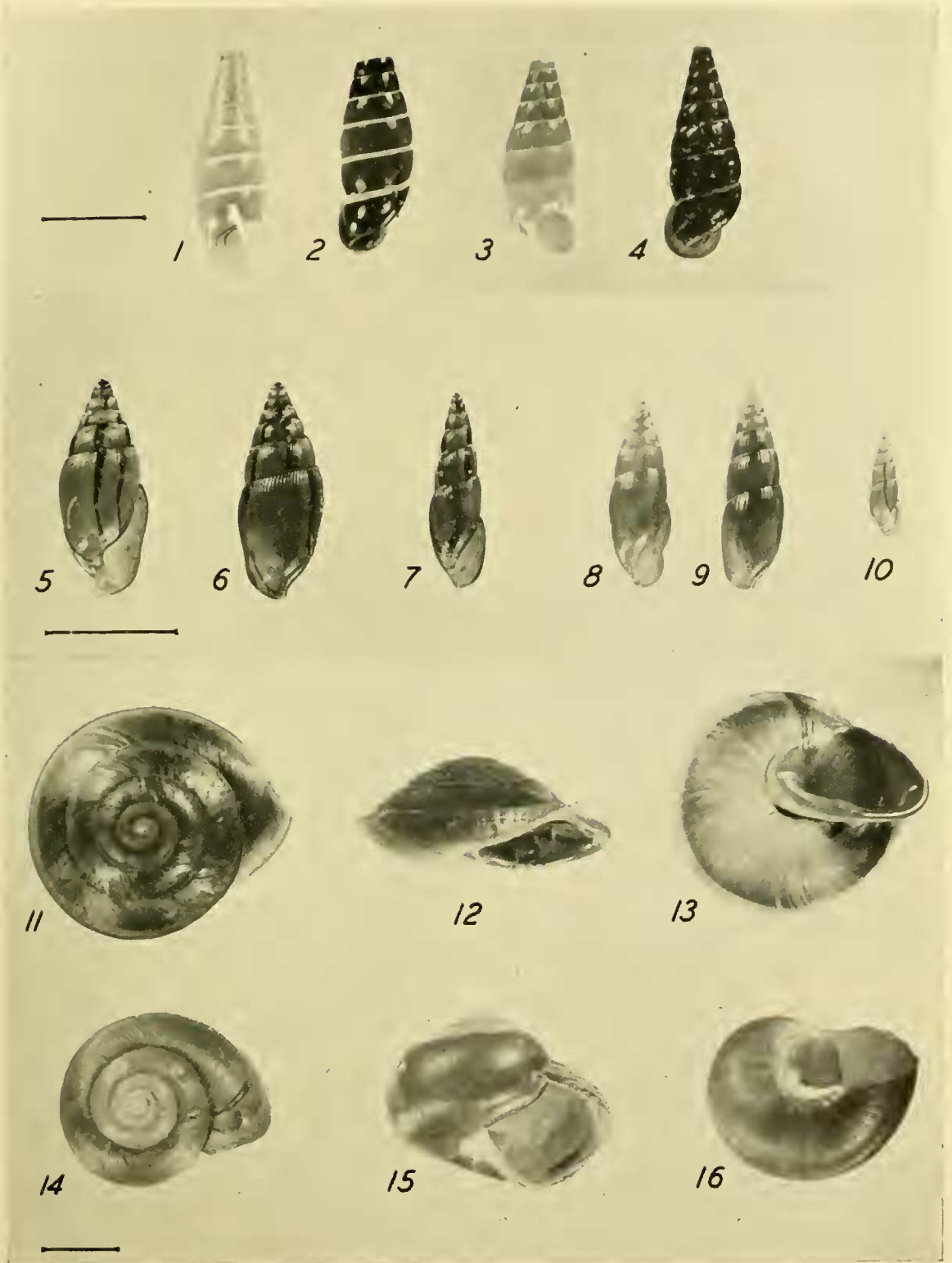
Varicella (*Costavarix*) *adamsiana* (Ch.), fair climber, at least occasionally [EJ3, EJF-fresh, ENF]. *V. costulata* (C.B.A.), ground [KHS]; subsp. *pallidula* Pils. [ML1-dead, ML2-fresh]. *V. gracilior* (C.B.A.) (= *gossei* Pfr.?), ground, incl. typical [VW2; like Man. Conch., pl. 12, f. 9, but larger], race with ribs obsolete on last whorls [VWS; like l.c., f. 8] and much stouter subsp. (divergence almost 20°) [MN3a, NMM; 2 bleached shells]. *V. mandevillensis* Pils. (= *osculans* C.B.A.?), weak

climber [MN2,3, MN]. Living animals of all the smaller species of *Varicella* are apt to be clustered around egg-masses of *Pleurodonte* and other snails.

V. (Varicellula) propinqua (C.B.A.), ground, incl. typical [MM4, WC2] and paedogenetoid form [VCMb]. *V. puella* (C.B.A.), ground [WC2]. *V. proxima* (C.B.A.), ground [ENF.]. *V. blandiana* (C.B.A.), ground and on rocks (eating *Microceramus*), incl. typical [MM3, MN2-3] and f. *subaequa* H.B.B. [MM3]. *V. tenera* (?) *roperi* Pils. [ENF-dead, KF]. *V. rapax* Pils. & Br., ground [MN2, VWS].

V. (Varicellaria) necrodes H.B.B., weak rock-climber [MM4, MN2-3, NMM, NM2, NMV, fresh; NM2c found eating *Eutrochatella pulchella cavearum*]. *V. griffithii ischna* Pils. [KHWA-fresh]. *V. ligata* (C.B.A.), ground and rock-bases, incl. typical [NMV-fresh] and Mandeville race [MM3, MN3-fresh]. *V. philippiana* (Pfr.), mainly rock-bases, incl. typical [ML1, NMM-fresh, NMV-fresh, VW2] and race *elegans* (C.B.A.) [MM2-dead, 3, MN]. *V. subdola* H.B.B. [WWF-fresh].

V. (Euvaricella) venusta (Pfr.), ground, incl. typical [NMM-fresh, NM2a-dead, NMV-fresh] and smaller, thinner race with more widely spaced, weaker striae [ML1-dead, MM3, 4-fresh, MN1-fresh, 3]. *V. phillipsii* (C.B.A.), ground [EBL, EEJ, EJ2-3, EJF]. *V. nemorensis* (C.B.A.), ground [KC1-fresh, KF, KHS]. *V. castanea* H.B.B., ground [EEJ]. *V. biplacatula* Pils., ground [VW1-2]; subsp. *dissimilis* Pils. [KFKHW, ML-fresh, MM1-dead, 4-fresh, MN3, NMM, NM1-dead, NMV-fresh] and paedogenetoid stocks [WC, WWF]. *V. arcuata paradisi* H.B.B., ground [VCMd]. *V. similaris* Pils., ground and rock-bases, incl. typical [NM3, MN1, 3] and f. *sloaneana* Pils. [MM3]. *V. levis* (C.B.A.), ground [EJF]. *V. pellucens* (C.B.A.) [KHWA-fresh; amber color, with very light but distinct chestnut varices]. *V. clappi* Pils., ground [NM2a; slightly larger, one with more widely spaced striae on last whorl (appr. *pellucens* and all with similar coloration)]. *V. cochlidium* Pils., ground, large race [MN2-fresh, 3, NMM-fresh; as large as typical *clappi*; light horn colored with distinct, light chestnut varices]. *V. spina* Pils., ground [VWS; very light horn color without marked color-varices].



1, 2. *Anoma splendens medinae*. 3, 4. *A. nigrescens levior*. 5, 6. *Varicella subdola*. 7. *V. castanea*. 8, 9. *V. vicina portlandensis*. 10. *V. arcuata paradisi*. 11-13. *Pleurodonte cara catadupae*. 14-16. *Zaphysemia olivaceum*.

PLATE 2. Scales represent 1 cm.; uppermost one for figs. 1-4, second for figs. 5-10 and lowest for figs. 11-16. Photographed by Alfred Zimmerman.